

Geographic Analysis and Monitoring Program

National Land Cover Database Project

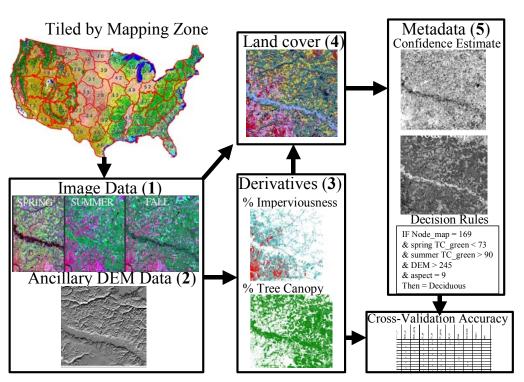
Statement of Problem

Regional and global level changes in land cover and land use, including such essential categories as forest and grassland cover, agricultural uses, and urban and suburban settlement, are still poorly documented. An improved understanding of land use and land cover is critical to evaluating the contemporary changes of ecosystems and to developing the baseline needed to protect and mitigate future impacts to ecosystem health. General land cover information is essential for many environmental, land management, and modeling applications.

Objectives

The goal of this project is to develop the 2001 National Land Cover





This figure illustrates the National Land Cover Database for 2001. Database ingredients include: (1) normalized tasseled cap (TC) transformations of Landsat 7 imagery for three time periods per scene (early, peak and late), (2) ancillary data including 30 m DEM data of slope, aspect and a positional index, (3) image derivatives of percent imperviousness and percent tree canopy estimates per-pixel, (4) twenty-one classes of land-cover data derived from the imagery, ancillary data and derivatives, and (5) classification rules, confidence estimates and comprehensive metadata.

Database (NLCD). The NLCD provides the Nation with nationally complete, current, and consistent public domain information on the Nation's land use and land cover. Specific objectives are: (1) coordinate activities of the MRLC Consortium, (2) prepare satellite and ancillary data needed for NLCD data processing, including data for contracting, (3) analyze data and produce the NLCD, and (4) develop new procedures for creating and applying the NLCD.

Relevance and Impact

In 1992, a consortium of federal agencies pooled their resources to purchase Landsat-5 satellite data for mission applications, and to create a National Land Cover Database with circa 1992 data. The Multi-Resolution Land Characteristics (MRLC) Consortium is repeating this effort and has purchased Landsat-7 data with plans to produce NLCD 2000. Staff at EDC support the MRLC with technical and administrative operations. EDC coordinates communication with 20 partners through conference calls and

emails, as well as regular meetings required to keep the Consortium functioning. Partner contributions are a major source of funding and data for the NLCD.

The NLCD is the land cover component of *The National Map*. MRLC Consortium partners depend on the satellite data and land cover database to support their programs. The USGS GAM Program depends on NLCD for the Status and Trends Report on the Nation's land surface.

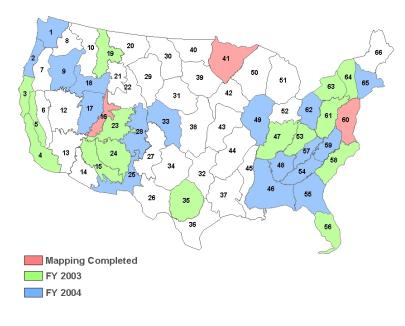
Strategy and Approach

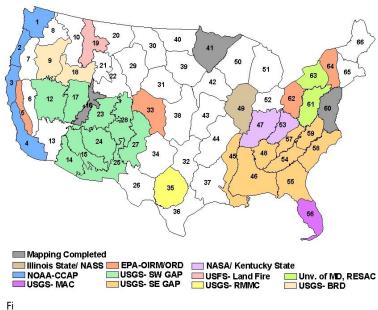
The NLCD will be produced over a 5-year period, from FY 2001 to FY 2006, at a total cost of about \$12M. The entire U.S., including Puerto Rico, will be covered. This project is supported by USGS appropriated funds and reimbursable funds from MRLC Partners. The database approach allows for mapping zones to be done independently by government analysts, contractors, or cooperators. Maximum effort is being expended to use partnerships to accomplish the mapping through proposals, interagency agreements, and other cost-share agreements.

MRLC Consortium task conducts NLCD project management, and US coordination of Multi-Resolution Land Characteristics (MRLC) Consortium activities. The Consortium includes

Five tasks are identified to

accomplish this project. The





USGS, EPA, NASA, NRCS, USFS, BLM, NPS, and NOAA. The NLCD Data Preparation task ensures

collection and processing of Landsat-7 satellite imagery. ground data, and a variety of ancillary data sets ranging from aerial photography to topographic derivatives. This data preparation is required for subsequent processing in the NLCD Data Production Task. The NLCD Data Production employs "decision tree" software to process a variety of information inputs to identify and label the land cover type for each 30-meter pixel. Analysts create decision tree models, then review and revise the decision tree output to produce the final derivative land cover database. The NLCD Strategies task employs scientists who create new procedures and approaches for mapping land cover in support of the NLCD. Techniques are adapted or created, tested, evaluated, and if successful, incorporated into the NLCD Data Production Task. The World Data Center task provides assistance to users of Land Cover data, coordinates activities of EDC's World Data Center for Land Cover Data, and conducts applications of the data

For More Information

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